



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/755,856	01/12/2004	Maurice Gell	UCT-0040	8424
23413	7590	09/11/2007	EXAMINER	
CANTOR COLBURN, LLP 55 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002			SAVAGE, JASON L	
ART UNIT		PAPER NUMBER		
1775				
MAIL DATE		DELIVERY MODE		
09/11/2007		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/755,856	GELL ET AL.	
Examiner	Art Unit		
Jason L. Savage	1775		

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 07 August 2007.

2a)  This action is **FINAL**.                            2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## **Disposition of Claims**

4)  Claim(s) 1-21,23,25-38,40 and 43-68 is/are pending in the application.  
4a) Of the above claim(s) 1-16,19-21,23,25-38,40, 45-62 and 65-68 is/are withdrawn from consideration.

5)  Claim(s) 63 is/are allowed.

6)  Claim(s) 64 is/are rejected.

7)  Claim(s) 17,18, 43, 44 is/are objected to.

8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All    b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)  Notice of References Cited (PTO-892) 4)  Interview Summary (PTO-413)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948) Paper No(s)/Mail Date. 20070827.  
3)  Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_ 5)  Notice of Informal Patent Application  
6)  Other: \_\_\_\_\_

***Prior Action Vacated***

As discussed in the interview with Michelle Henderson on 8-27-07, the previous Office Action mailed 8-16-07 is vacated and replaced by the present Office Action.

***Election/Restrictions***

Newly amended and newly submitted claims 16, 19-21, 23, 25-31, 33-38, 40, 45-52, 59-60 and 65-68 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

The previously examined claims as originally filed were drawn to a material comprising splats having an average diameter of less than or equal to about 2 micrometers.

The originally elected invention and the inventions in the claims recited above are directed to related products. The related inventions are distinct if the (1) the inventions as claimed are either not capable of use together or can have a materially different design, mode of operation, function, or effect; (2) the inventions do not overlap in scope, i.e., are mutually exclusive; and (3) the inventions as claimed are not obvious variants. See MPEP § 806.05(j). In the instant case, the inventions as claimed have a different design such as the new claims are silent to the material having any splats. Furthermore, the inventions as claimed do not encompass overlapping subject matter and there is nothing of record to show them to be obvious variants.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 16, 19-21, 23, 25-31, 33-38, 40, 45-52, 59-60 and 65-68 have been withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim 64 is rejected under 35 U.S.C. 103(a) as being unpatentable over Padture et al. (Acta Mater. 49 (2001) 2251-2257 – article “Towards Durable Thermal Barrier Coatings with Novel Microstructures Deposited by Solution Precursor Plasma Spray) in view of Chow et al. (US 2002/0031658).

Padture discloses a thermal sprayed coating comprising containing novel microstructures which is formed by solution precursor plasma spray (abstract). During the interview with Dr. Gell's on 7-18-07, it was stated that the solution precursor plasma spay method described by Padture resulted in splats having the claimed size, but were not able to be identified with the processing method used at the time. As such, Padture would anticipate the claim limitations drawn to the splat size. Padture teaches the porosity may be 16.4% (p. 2253, Results)

but is silent to forming a coating having the claimed splat structures wherein the porosity is 10% or less.

Chow discloses a method thermal spray coating employed fine droplets which form aggregate splat microstructures having a dimensions smaller than those using powder feedstock (par. [0024]). Chow further teaches that the coatings may be subjected to post deposition techniques which allow for tailoring and adjustment of the coating properties including the porosity (par. [0039]). It would have been within the purview of one of ordinary skill in the art to have recognized that the porosity of the coating of Padture could be adjusted from 16.4% to other porosity values in order to tailor the material to be suited for the application in which it will be used. Absent a teaching of the criticality or showing of unexpected results when the porosity of the claimed coating is 10% or less, it would not provide a patentable distinction over the prior art of Padture as modified by Chow.

Regarding the limitation that coating have no inter pass boundaries within about 50 micrometers of an interface between the substrate and the coating, since Padture is silent to the formation of inter pass boundaries, it is the position of the Examiner that no inter pass boundaries are contained in the coating. As such, the coating of Padture as modified by Chow would meet the limitation of having no inter pass boundaries within about 50 micrometers of an interface between the substrate and the coating.

Claim 64 is rejected under 35 U.S.C. 103(a) as obvious over Chow et al. (US 2002/0031658).

Chow discloses a method thermal spray coating employed fine droplets which form aggregate splat microstructures having a dimensions smaller than those using powder feedstock (par. [0024]). Chow further teaches that the splat particle microstructures in the formed coating have a particle size less than 0.1 micron (par[0031]).

Chow does not explicitly recite the porosity of the material, however it teaches that coatings may be subjected to post deposition techniques which allow for tailoring and adjustment of the coating properties including the porosity (par. [0039]). It would have been within the purview of one of ordinary skill in the art to have formed the material to have a porosity which would allow for it to be suitable in the application in which it is intended to be used.

Regarding the limitation that coating have no inter pass boundaries within about 50 micrometers of an interface between the substrate and the coating, since Chow is silent to the formation of inter pass boundaries and teaches coatings which are a single layer/material (par[0037]), it is the position of the Examiner that no inter pass boundaries are contained in the coating. As such, the coating of Chow would meet the limitation of having no inter pass boundaries within about 50 micrometers of an interface between the substrate and the coating.

Claim 63 is allowed.

Claims 17-18 and 43-44 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason L. Savage whose telephone number is 571-272-1542. The examiner can normally be reached on M-F 6:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on 571-272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Jason Savage  
8-31-07



JENNIFER C. MCNEIL  
SUPERVISORY PATENT EXAMINER  
9/4/07